INFECTION PREVENTION BEST PRACTICES – LESSONS LEARNED AND GAPS IN COMMUNITY HOSPITALS

DEVERICK J ANDERSON, MD, MPH FIDSA, FSHEA

ASSOCIATE PROFESSOR, DIVISION OF INFECTIOUS DISEASES

DIRECTOR, DUKE CENTER FOR ANTIMICROBIAL STEWARDSHIP AND INFECTION PREVENTION

Duke University School of Medicine

dicon.medicine.duke.edu
dason.medicine.duke.edu

Duke Center for Antimicrobial Stewardship and Infection Prevention

Main Points

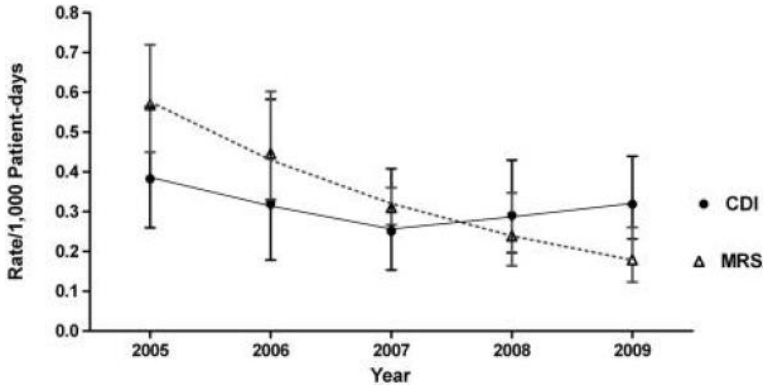
- Community hospitals are important
- Essentially, best practices used in community hospitals are (*or should be*) the same best practices used in tertiary care hospitals
- Unique gaps in community hospital setting
  - Main issue = availability of support and expertise

Community Hospitals

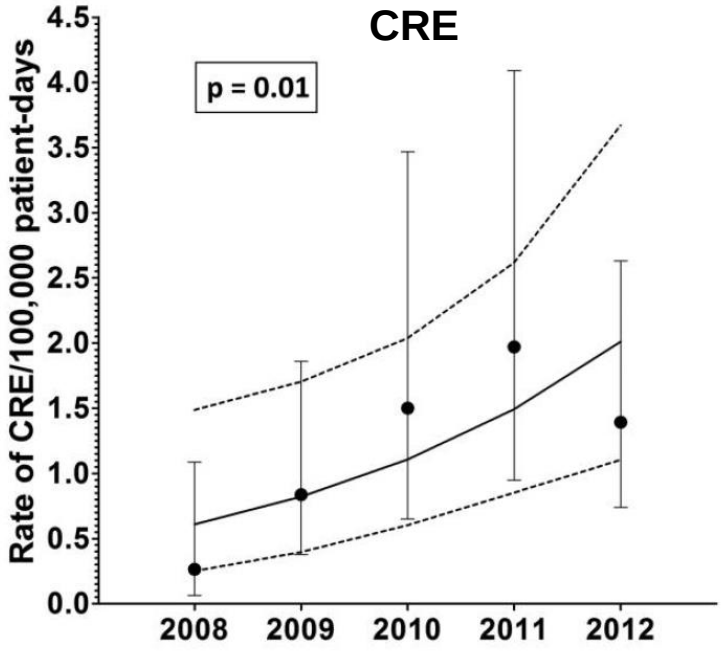
- Of >5,000 hospitals in the US, ~4,000 are non-teaching hospitals
  - 70% of all US hospitals have <200 beds
- Ultimately, >50% of healthcare in the US is provided in small, community hospitals
- Perspective provided through outreach networks
  - DICON
  - https://dicon.medicine.duke.edu/
  - DASON
  - https://dason.medicine.duke.edu/

http://www.ahrq.gov/research /data/hcup/index.html. Anderson et al. ICHE 2011;32:315-22.

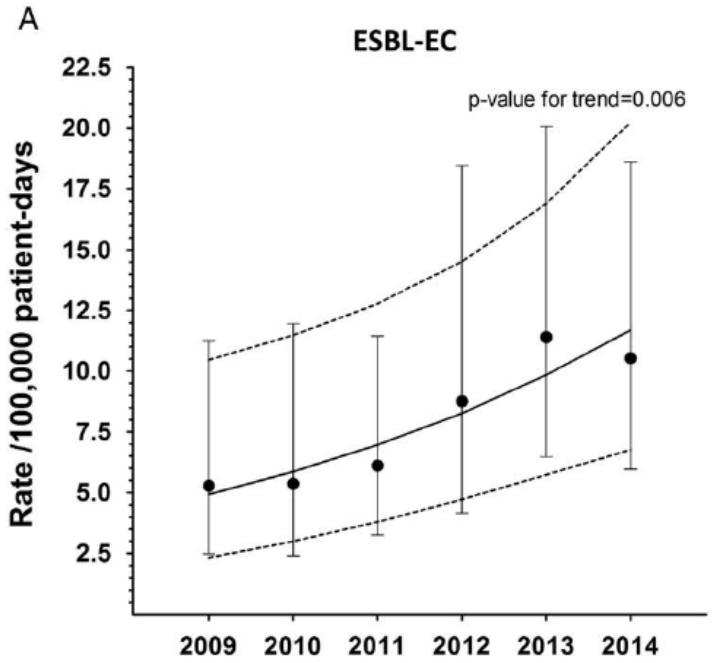
Trends in Resistance and Infection



- 10 hospitals
- 847 hospital onset-CDI
- 838 hospital-onset MRSA



- 25 hospitals
- 305 infections
- Micro resources matter

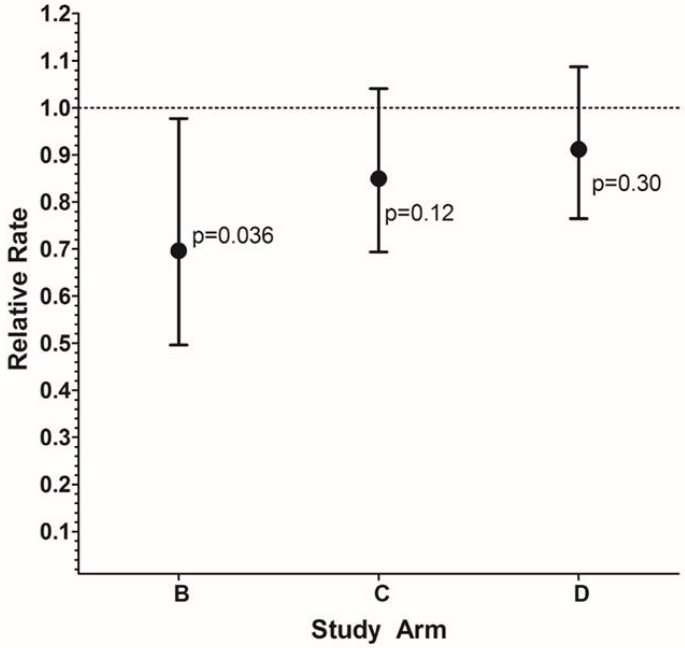


- 26 hospitals
- 925 infections

Miller et al. ICHE 2011;32:387. Thaden et al. ICHE 2014;35:978. Thaden et al. ICHE 2016;37:49.

Community Hospitals in RCT

- BUGG
  - Harris et al. JAMA 2013;310:1571
- REDUCE MRSA
  - Huang et al. NEJM 2013;368:2255
- Benefits of Enhanced Terminal Room (BETR) Disinfection
  - 9 hospitals: 2 tertiary care, 1 VAMC, 6 community hospitals
  - Cluster RCT comparing four strategies for terminal disinfection of hospital rooms
    - Surveillance data on 314,819 patients; >21,000 patients included in analysis
  - Adding UV-C to standard chemical disinfection decreased rate of acquisition and infection from MRSA, VRE, and *C. difficile*.



Anderson et al. Lancet 2017, *epub ahead of print*.

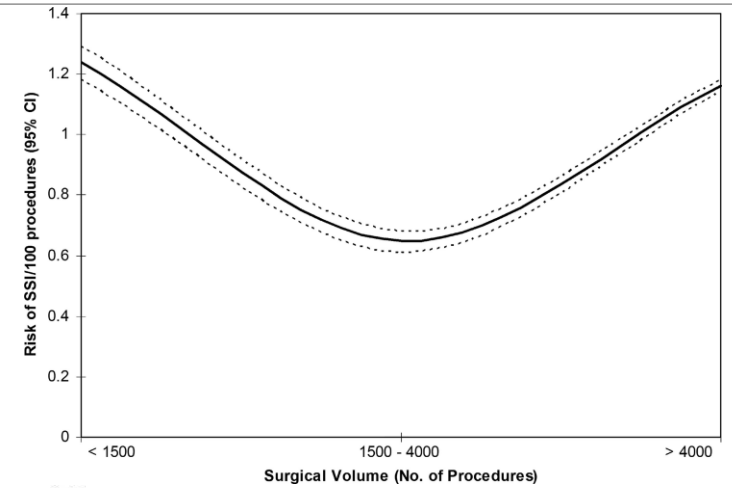
Gaps in Community Hospitals

- **Lack of access to specialists**
  - Approximately 1 in 4 DICON hospitals had ID specialists on staff (part or full time)
    - Only 1 in 4 of these specialists were paid for IC supervision
- **Deficits in administrative leadership**
  - Half of 39 DICON community hospitals changed their CEO during 4-year period
- **Limited personnel and resources (lack of investment)**
  - 95% of local IP staff had non-infection control responsibilities and/or jobs.
  - 6 in 10 had no support staff and no or few opportunities for continuing education
  - Cost of HAI ~5X cost of prevention
- **Infrequent infections**
- **Data not available/not "believable"**
  - Non-validated and/or inaccurate data
  - Small denominators
  - Key data elements are not collected
- **Data not used effectively**
  - Lack of time-trending, benchmarking
  - Data not widely shared with staff and leadership
  - Data are not consistently used to drive performance improvement

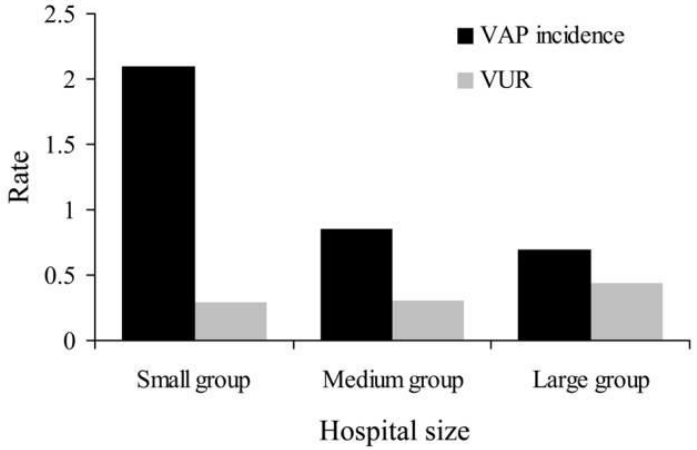
Anderson and Sexton. ICHE 2008;29:1071. Anderson et al. ICHE 2007;28:767.

Gaps Impact IC and Stewardship

SSI



VAP



- 1,470 patients with BSI
  - 33% received inappropriate empiric tx
- 693 patients with MRSA
  - 56% received inappropriate empiric tx
- 383 hospitals in Truven Hospital Drug Database
  - Hospitals with <300 beds and non-teaching hospitals had highest use

Anderson et al. Ann Surg 2008;247;343. Lee et al. ICHE 2013;34:657. Anderson et al. PLoS One 2014. Kaye et al. CID 2008;46:1568. Baggs et al. JAMA Intern Med 2016;176:1639.

Take Home Points

- More than half of the healthcare provided in the US is provided in small community hospitals
- Data to determine if best practices in community hospitals *should* be different are generally lacking
  - If silver lining, increasing number of health systems include numerous community hospitals
- Unique gaps in community hospitals limit uptake and use of best practices
  - Support – leadership, expert, administrative
  - Low volume